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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,442	07/03/2003	Shannon R. Schwenn	42522.0817	7736

7590

12/03/2004

Joseph W. Price
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EXAMINER

WIEKER, AMANDA FLYNN

ART UNIT

PAPER NUMBER

3743

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED

DEC 21 2004

TECHNOLOGY CENTER R3700

Office Action Summary	Application No. 10/614,442	Applicant(s) SCHWENN ET AL.	
	Examiner Amanda F. Wieker	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-66 is/are pending in the application.
- 4a) Of the above claim(s) 43-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03 July 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 37-42, drawn to a support plate for an orthotic, classified in class 602, subclass 5.
 - II. Claims 43-48, drawn to a connector plate assembly for a hip orthotic, classified in class 602, subclass 23.
 - III. Claims 49-58, drawn to an orthotic brace with a sleeve, classified in class 602, subclass 60.
 - IV. Claims 59-66, drawn to an orthotic brace with an articulated joint and adjustable linking system, classified in class 602, subclass 60.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, Invention I has separate utility such as an orthotic brace for any body part, while Invention II supports the hip. See MPEP § 806.05(d).
3. Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, Invention I has separate utility such as an orthotic brace with a support plate for adjustability, while Invention II is an orthotic with a sleeve member to prevent rotational displacement. See MPEP § 806.05(d).
4. Inventions I and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be

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separately usable. In the instant case, Invention I has separate utility such as an orthotic brace with a support plate for adjustability, while Invention IV is an orthotic to control movement of an articulated joint. See MPEP § 806.05(d).

5. Inventions II and III-IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, Invention II has separate utility such as an orthotic brace for supporting the hip, while Inventions III-IV are orthoses applied to any part of the body. See MPEP § 806.05(d).

6. Inventions III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, Invention III has separate utility such as an orthotic with a sleeve member to prevent rotational displacement, while Invention IV is an orthotic to control movement of an articulated joint. See MPEP § 806.05(d).

7. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II-IV, the search required for Group II is not required for Groups III-IV, and the search required for Group III is not required for Groups IV, restriction for examination purposes as indicated is proper.

8. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species A as depicted in Figures 6-8, and

Species B as depicted in Figures 11-12.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims appear generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

9. During a telephone conversation with Joseph Price on 04 November 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 37-42. Affirmation of this election must be made by applicant in replying to this Office action. Claims 43-66 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

11. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because a reference number is missing from the lead line drawn at the top of Figure 1, between reference number "3" and the axis defined as "Z". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections/Suggestions

12. Claims 37, 40 and 42 are objected to because of the following informalities:

In line 5 of claim 37 a "distal portion" is introduced. Later in claim 37, at lines 9 and 11, this structure is referred to as "the distal end", which lacks sufficient antecedent basis in the claim. This objection would be overcome by amending lines 9 and 11 to recite "the distal portion," as introduced in line 5. It is noted that claim 39 also refers to this structure as a "distal portion".

Claim 37 introduces both a "fastening structure" (line 7), and "a fastener member" (line 10). Because the second fastener element is referred to as "a" fastener "member", it appears that this fastener "member" is not necessarily the same as the "fastening structure" in line 7. If this is an incorrect interpretation of the claim, the claim should be amended to elucidate that the fastening structure and fastener member are necessarily the same structure. Because claim 40 refers to "the fastener member" this is assumed to be the fastener member of claim 37, line 10.

Similarly, because claim 42 introduces "a pair of fastener members," it is assumed that these fastener members are not necessarily the same "fastener member" that is introduced in line 10 of claim 37. If this is an incorrect interpretation of the claim, the claim should be amended to elucidate that the pair of fastener members and the fastener member of claim 37 are necessarily the same structure.

Appropriate correction is required.

13. The following suggestions are made to improve the clarity and readability of the claims.

In claim 38 at line 2, it appears that the phrase "complimentary curved location" may be more accurately characterized as a --complimentary curved portion--, or a --complimentary curved configuration--.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 37-40 are rejected under the judicially created doctrine of double patenting over claims 6-9 of U. S. Patent No. 6,589,195 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: '195 anticipates the subject matter claimed in claims 37-40 of the instant application. '195 discloses all of the subject matter instantly claimed, and further limits the claimed subject matter by limiting the orthosis to a hip orthosis. The '195 patent includes all of the claim limitations, and is more specific than the broad orthosis instantly claimed.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

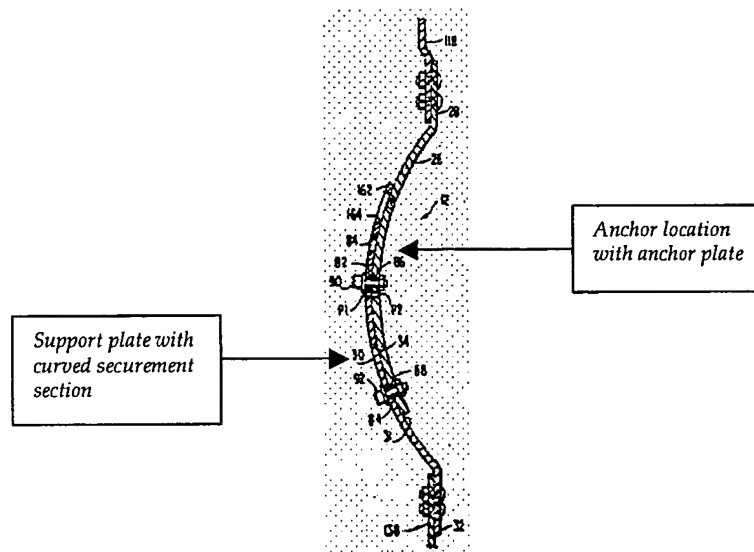
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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17. Claims 37-39 and 41-42 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Number 5,107,824 to Rogers et al.

Rogers et al. disclose an orthotic brace having an adjustable support plate assembly for positioning an appendant orthotic member at an operative position relative to an appendage of the user, comprising: a support plate (30) having a securement portion adjacent an anchor location/plate (26) operatively attached to the orthotic brace (110, 112) and a distal portion (32) for linking with the appendant orthotic member (130, 132) which is attachable to the user appendage (calf), the securement portion having a curved configuration (see Fig 5a) and a fastening structure (90, 92) that enables an adjustable movement relative to the anchor location to permit sliding movements of the distal portion towards and away from the user's upper torso. Rogers et al. also disclose a fastener member (166) for securing the curved configuration to the anchor location to maintain a desired position for the distal portion relative to the user. The anchor location/plate (26) is complementary to the curved configuration of the securement portion of the support plate (30), and receives the fastener member (166). The support plate (30) has a straight distal portion (32). The securement portion has a pair of elongated slots (82, 84) and a pair of fastener members (90, 92) is configured to fit within the elongated slots and fasten to the anchor location/plate (26).

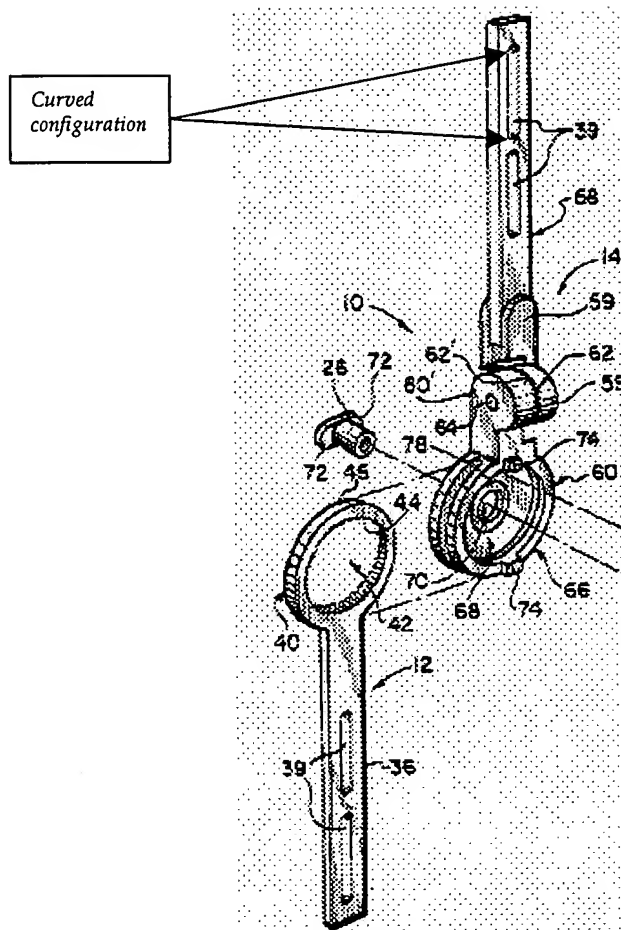
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18. Claims 37, 39-40 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,203,511 to Johnson et al.

Johnson discloses an orthotic brace (106) having an adjustable support plate assembly for positioning an appendant orthotic member (38) at an operative position relative to an appendage of the user, comprising: a support plate (58/36) having a securement portion adjacent an anchor location on the orthotic brace (106) and a distal portion (36) for linking with the appendant orthotic member (38) which is attachable to the user appendage, the securement portion having a curved configuration (see below; slots 39 comprise a curved configuration at the top and bottom of the slot) and a fastening structure (105) that enables an adjustable movement relative to the anchor location to permit sliding movements of the distal portion towards and away from the user. Rogers et al. also disclose a fastener member (105) for securing the curved configuration to the anchor location to maintain a desired position for the distal portion relative to the user. The support plate (58/36) has a straight distal portion (36). The securement portion has a pair of elongated slots (39) and a pair of fastener members (105) is configured to fit within the elongated slots and fasten to the anchor location.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda F. Wicker whose telephone number is 703-306-4056. The examiner can normally be reached on Monday-Thursday, 8:30 - 6:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on 703-308-0101. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

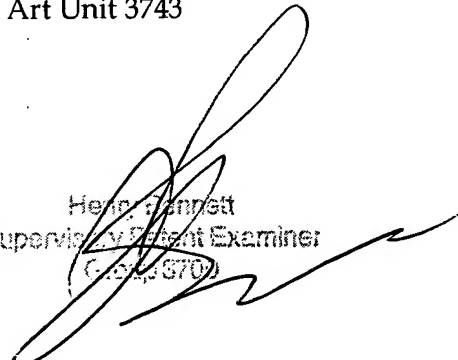


Amanda F. Wieker

Examiner

Art Unit 3743

afw



Henry Bennett
Supervisory Patent Examiner
(602) 370

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY DOCKET NO. 42522.0817		SERIAL NO.		
				FILING Herewith		GROUP		
U.S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
JW		6,254,559	7.2001	Tyrrell				
		5,385,536	1.1995	Burkhead et al.				
		4,865,024	9.12.1989	Hensley et al.				
		4,881,532	11.21.1989	Borig et al.				
		4,946,156	08.07.1990	Hart				
		5,054,476	10.08.1991	Petrofsky et al.				
		5,188,584	02.23.1993	Petrofsky et al.				
		5,344,391	09.06.1994	Modglin				
		5,630,791	05.20.1997	Glynn				
		5,620,412	04.15.1997	Modglin				
		5,681,267	10.28.1997	Molino et al.				
FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		DE-000191678-A	11.1907	Germany				
JW		1068845	01.11.2001	Europe				
JW		1068846	01.17.2001	Europe				
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)								
		Newport3 Hip System Brochure, Orthomerica Products, Inc. (copy)						
		"Team Management of Hip Revision Patients Using a Post-Op Hip Orthosis," by D. Lima et al. JPO/Journal of Prosthetics and Orthotics, Vol. 6, No. 1/Winter 1994						
EXAMINER Manda L. Weiker				DATE CONSIDERED 11/4/04				

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY DOCKET NO. 42522.0817		SERIAL NO.	
				FILING Herewith		GROUP	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
JW		5,728,164	03.17.1998	Ferrari et al.			
		5,860,943	01.19.1999	Bloedau et al.			
		5,938,629	08.17.1999	Bloedau			
		5,954,677	09.21.1999	Albrecht et al.			
		2,111,018	08.1935	Ahler			
		5,286,760	02.1992	Neumann et al.			
		2,654,365	11.1949	Whitaker			
		2,055,066	04.1934	Buchstein			
		5,647,378	07.1997	Farnum			
		6,090,057	07.2000	Collins			
		5,286,251	02.1994	Thompson et al.			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
		"Helping Hips Hold Up," D. Lima, BIOMECHANICS, June 1998					
		"Ultra-Guard Hip Orthosis" Brochure, Orthomedics, Rev. 9/93					
EXAMINER Manda L. Weiker				DATE CONSIDERED 11/4/04			

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	FILING Herewith	GROUP

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
JW	6,203,511	03.2001	Johnson et al.			
	6,027,466	02.2000	Diefenbacher			
	5,368,522	11.1994	Williamson			
	2,362,383	09.1942	Lendinara			
	5,662,595	09.1997	Chesher et al.			
	1,445,437	08.1921	Hoefftcke			
	4,481,941	11.13.1984	Rolfes			
	5,361,418	11.08.1994	Luzenske			
	5,421,810	06.06.1995	Davis et al.			
	5,460,599	10.24.1995	Davis et al.			
	5,487,724	01.30.1996	Schwenn			

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		"The Post-Op System from Becker Orthopedic" Brochure, Becker Orthopedics, 1998
		"DHC...DOBI Hip Controller" Brochure, DOBI-Symplex 1995

EXAMINER <i>Manda L. Wicker</i>	DATE CONSIDERED 11/4/04
------------------------------------	----------------------------

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	FILING Herewith	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
AW	5,538,499	07.23.1996	Schwenn et al.			
	5,681,270	10.28.1997	Klearman et al.			
	5,814,001	09.29.1998	Schwenn et al.			
	5,830,168	11.03.1998	Finnell et al.			
	2,545,843	03.20.1951	Cohan			
	3,528,412	09.15.1970	McDavid			
	3,779,654	12.18.1973	Horne			
	3,902,482	09.03.1975	Taylor			
	4,088,130	05.09.1978	Applegate			
	4,337,764	07.06.1982	Lerman			
	4,340,041	07.20.1982	Frank			

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

			"NEWPORT Hip System Brochure, Orthomerica Products, Inc. 1995
			"Boston Post-Op Hip Orthosis" Brochure, Boston Brace International, Inc.

EXAMINER <i>Amanda F. Wicker</i>	DATE CONSIDERED <i>11/4/04</i>
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<i>AW</i>		4,531,515	07.30.1985	Rolfes			
		4,881,299	11.21.1989	Young et al.			
		4,928,676	05.29.1990	Pansiera			
		4,982,732	01.08.1991	Morris			
		5,000,170	03.19.1991	Young et al.			
		5,039,247	08.13.1991	Young et al.			
		5,052,379	10.01.1991	Airy et al.			
		5,107,824	04.28.1992	Rogers et al.			
		5,399,154	03.21.1995	Kipnis et al.			
		5,038,765	08.13.1991	Young et al.			
		4,579,588	04.1986	Ramer			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
		"Spinal Solutions "Sentry" Hip Orthosis", Spinal Solutions, Inc.					
		Bledsoe Brace Systems Catalog, 1995					
EXAMINER <i>Manda L. Weker</i>				DATE CONSIDERED <i>11/4/04</i>			

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
HW	6,494,853-B1	12.2002	Rossi			
I	6,488,644-B1	12.2002	Ostrom et al.			
	5,941,912	08.1999	Taylor			
	6,039,707	03.21.2000	Crawford et al.			
	5,282,460	02.1994	Boldt			
	4,243,027	06.1981	LaCourse			
	4,574,790	03.1986	Wellershaus			

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

			"Donjoy Post-Op/Rehab Braces" Brochure, 1995
			"Matrix Medical Coporation CKM Brace #89" Brochure, 1995

EXAMINER <i>Manda L. Weiker</i>	DATE CONSIDERED <i>11/4/04</i>
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Notice of References Cited	Application/Control No. 10/614,442	Applicant(s)/Patent Under Reexamination SCHWENN ET AL.	
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(11) **EP 1 068 845 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
17.01.2001 Bulletin 2001/03

(51) Int. Cl.⁷: **A61F 5/01**

(21) Application number: **00202446.1**

(22) Date of filing: **07.07.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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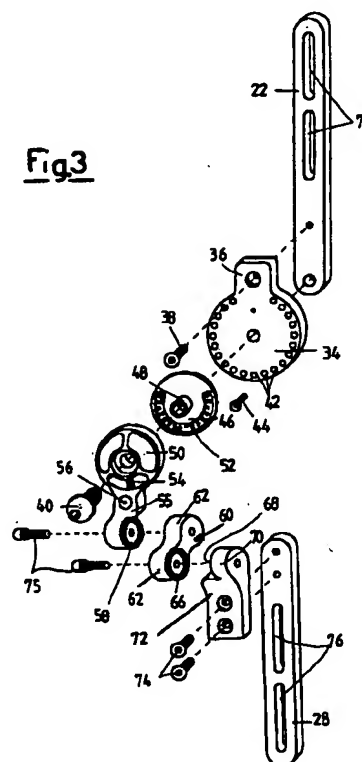
(30) Priority: **13.07.1999 IT MI991537**

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(54) **Articulated rod for a hip support**

(57) An articulated rod (14) for a hip support (11) comprises a first element (22) designed to be associated to a pelvis harness (12), and a second element (28) designed to be associated to a thigh harness (16). The first element (22) and second element (28) are joined together by means of a hinge (30). The hinge (30) comprises a first plate (34) which is fixed to the first element (22) and has a face set against a corresponding face of an articulation plate (50), the first plate (34) and the articulation plate (50) being joined by means of a closing element (40) inserted in aligned through holes of the first plate (34) and of the articulation plate (50). In addition, the first plate (34) has holes (42) which are set along one portion of its own periphery and in which adjustment elements (44) can be inserted. The said adjustment elements (44) are designed to limit rotation of said articulation plate (50) with respect to the first plate (34).



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Description

[0001] The present invention refers to an articulated rod for a hip support.

[0002] It is known that hip supports are surgical medical appliances that are used when a person has problems of hip dislocation, more in particular in the cases where the head of the femur tends to come out of its own seat in the hip. Elderly people, and in particular women, have problems of this kind, which are usually dealt with by resorting to a surgical operation for reconstruction of the head of the femur by means of a titanium prosthesis. Following upon a surgical operation of this kind, it is necessary to provide appropriate protections for the hip, at least for the period immediately following on the operation, in order to prevent the head of the femur from coming out of its seat.

[0003] For a long time now there have been available on the market hip supports that are made up of a pelvis harness, which embraces the patient's pelvis, and a thigh harness, which embraces the patient's thigh. The pelvis harness and thigh harness are connected together by means of an articulated rod which limits the patient's movements so as to prevent any movements that might prove dangerous for the patient.

[0004] A traditional articulated rod comprises a first element, designed to be connected to the pelvis harness, and a second element, designed to be connected to the thigh harness. Set between the first element and the second element is a hinge that enables mutual rotation of the two elements.

[0005] The hinge consists of two adjacent disks, each of which is provided with a slot along its own periphery. The two disks are set one on top of the other in such a way that also the slots overlap at least partially, so as to identify an opening, the length of which is adjustable. Along its own periphery, each of the two disks is provided with teeth, between which a wedge-shaped element can be introduced, which blocks the two disks together in such a way as to form a single monolithic element provided with the opening consisting of the overlapping slots of the two disks.

[0006] The first element of the articulated rod is fixed to one of the two disks, whilst a third plate provided with a pin is associated to the other disk in such a way that it can rotate. The said pin is inserted in the opening identified by the two partially overlapping slots.

[0007] The third plate ends in an extension provided with an articulation which enables the second element of the articulated rod to rotate with respect to the first element, so as to bring the former element up to or move it away from the patient's thigh and thus adapt the articulated rod to the conformation of the patient's leg.

[0008] The articulation consists of a plane portion of the extension of the third plate, which is provided on one free surface with a toothing. The said toothing meshes with a corresponding toothing of an end portion of the second element of the articulated rod. The tooth-

ings are then blocked by means of a screw.

[0009] The traditional rod described above is used after prior setting of the length of the opening identified by the overlapping slots according to instructions given by a doctor. Setting is achieved by rotating the first plate with respect to the second plate. Subsequently, the articulation is set by adapting it to the physical structure of the patient. Next, the articulated rod can be mounted, on one side on the pelvis harness, and on the other side on the thigh harness. At this point, the hip support is ready to be worn.

[0010] The aforesaid articulated rod for a traditional hip support is notoriously not only difficult to adjust, but regulating it is extremely laborious and only relatively precise.

[0011] In addition, when the rod is mounted on a hip support that is to be worn by a person who has some physical defect or, more simply, who is particularly fat or particularly thin, usually it assumes an inappropriate position and may cause discomfort to the patient who is wearing the hip support.

[0012] A purpose of the present invention is to eliminate the technical problems referred to above by providing an articulated rod for a hip support that can be adjusted in a simple, fast, and moreover substantially precise way.

[0013] Another purpose of the present invention is to provide an articulated rod for a hip support that is always properly positioned on the hip support, independently of the physical characteristics of the patient wearing the latter; this, in particular, in order not to induce distress or discomfort in the user.

[0014] Not the least important purpose of the present invention is to provide an articulation rod for a hip support that is basically simple, safe, and reliable.

[0015] These and other purposes according to the present invention are achieved by providing an articulated rod for a hip support according to Claim 1.

[0016] Other characteristics of the present invention are moreover defined in the ensuing claims.

[0017] Advantageously, the articulated rod according to the present invention can be mounted on various types of hip supports, with the only limitation that the pelvis harness and thigh harness should be provided with seats suitable for receiving the said articulated rod.

[0018] Further characteristics and advantages of an articulated rod for a hip support according to the present invention will emerge more clearly evident from the ensuing description, which is provided purely to give explanatory and non-limiting examples, with reference to the attached schematic drawings, in which:

Figure 1 shows a rod according to the invention, mounted on a hip support, in a first embodiment; Figure 2 shows an enlarged portion of a rod according to the invention, in a second embodiment; Figure 3 is an exploded view of the rod in the second embodiment of the present invention; and

Figure 4 is an enlarged side elevation of a detail of an articulation of the rod.

[0019] With reference to the above figures, an articulated rod for a hip support is illustrated, the hip support being designated, as a whole, by the reference number 11.

[0020] The hip support 11 comprises a pelvis harness 12 which is connected, via an articulated rod 14 according to the present invention, to a thigh harness 16.

[0021] The pelvis harness 12 has a protruding portion 18 provided with a groove 20 which identifies a seat where a first element 22 of the articulated rod 14 is to be housed.

[0022] On the opposite side, the thigh harness 16 has a protruding portion 24 similar to that of the pelvis harness 12, which is also provided with a groove 26 that identifies a seat in which a second element 28 of the articulated rod 14 is to be housed.

[0023] The first element 22 and second element 28 which make up the articulated rod 14 are joined together by means of a hinge 30 provided with an articulation 32.

[0024] The hinge 30 is obtained by means of two substantially disk-shaped plates set on top of one another.

[0025] One first plate 34 has a radial thickened portion 36 provided with a through hole in which a first screw 38 is inserted for blocking the plate 34 itself on the element 22. The plate 34 moreover has a second through hole in which a second screw 40 is inserted. The screws 38 and 40 are fixed in threaded holes of the element 22 which are aligned with the through holes of the plate 34.

[0026] The plate 34 has, along its own periphery, a series of threaded through holes 42 inside which screws or adjustment elements 44 can be inserted.

[0027] A washer 46 made of self-lubricating plastic material is set against the plate 34. The washer 46, which is disk-shaped, is provided with a central hole set in line with the central hole of the plate 34. From the edges of such a hole there extends a sleeve portion 48 that inserts in a through hole, also set at the centre, of an articulation plate 50. The washer 46 has, along its own periphery, a graduated scale 52, which is set in an area corresponding to the holes 42 but further inside in the plate 34.

[0028] The plate 50 is also disk-shaped and has a window 54 through which it is possible to read the indications of the graduated scale 52.

[0029] Inside the central holes of the plate 50, of the washer 46, and of the plate 34 is inserted the screw 40, as closing element, which blocks on the element 22 to keep the elements of the hinge 30 clamped together, and thus to keep the hinge 30 itself closed.

[0030] Integral with one end of the plate 50 is an extension 55 which is provided with a clamping hole 56

and ends with a plane portion 58 set on a plane orthogonal with respect to the plane of the plates 34 and 50, the plane portion 58 being disk-shaped and being provided with teeth along its entire perimeter. The portion 58 is connected to an articulation element 60 which enables regulation of abduction, adduction, and alignment of the pelvis harness 12 with respect to the thigh harness 16.

[0031] The element 60 consists of a pair of cylindrical washers, each of which is designated by 62, which are joined together by means of an inclined intermediate portion 64. The element 60 is monolithic and is shaped in such a way that the two front surfaces 66, which are set facing opposite sides of each washer 62, are substantially contained in the same plane. These surfaces 66 are moreover provided with teeth for meshing with the portion 58 of the extension 55 on one side, and with a portion 68, provided with teeth and similar to the portions that have just been described, of an extension 70 protruding from a block 72.

[0032] The block 72 is fixed, by means of a pair of screws 74, to the second element 28 of the articulated rod 14.

[0033] The extension 55 has a through hole aligned with a through hole of one of the washers 62 for introduction therein of a screw 75 and consequent clamping of the connection. Likewise, also the other washer 62 of the articulation element 60 has a through hole aligned with a through hole of the extension 70 of the block 72, for insertion therein of another screw 75 and consequent clamping of the connection.

[0034] The elements 22 and 28 of the rod 14 are each moreover provided with a pair of slots 76 for introduction of the screws 78 for fixing the rod 14 to the pelvis harness 12 and the thigh harness 16.

[0035] Use and operation of an articulated rod for a hip support according to the present invention are described in what follows.

[0036] According to the doctor's instructions, two screws 44 are inserted in the holes 42 in such a way as to limit movement of the leg.

[0037] An explanatory and non-limiting example is provided, which is illustrated in Figures 1 and 2, where one first screw 44 may be seen that is set so as to prevent the patient from bending his/her leg backwards beyond a position where his/her leg is vertical and parallel to the body, whilst at the front another screw 44 is set in the end hole 42 and, consequently, does not limit the patient's movements.

[0038] Subsequently, once the patient has put on the hip support 11 and fixed the rod 14 on it, the articulation 30 is adjusted so as to adapt it to the physical conformation of the patient. This is done by means of the screws 75 that are loosened so as to rotate the element 60 and the block 72. When the appropriate position is found, the screws 75 can be tightened.

[0039] At this point, the hip support 11 may be used and can perform its function of containment of the

femur head and, at the same time, limits movement of the patient's leg. In fact, when the patient wearing the hip support 11 moves his/her leg, the hinge can turn only as far as the point where the extension 55 comes up against one of the adjustment screws 44, and further movements of the leg are prevented.

[0040] Variations and modifications to the articulated rod 14 according to the invention are of course possible. For example, as shown in Figure 1, the rod 14 may also be used without the element 60, by meshing the portion 68 of the block 72 directly with the portion 58 of the plate 50. In addition, the plane portion 58, the portion 68, and the surfaces 66 meshed with them can be provided with male-female elements 80.

[0041] An embodiment of this sort is suitable for being used by patients having a normal physical structure, whilst the embodiment of the rod 14 with the articulation element 60 is especially suited for being used by persons who are particularly fat or particularly thin.

[0042] It has in practice been found that an articulated rod for a hip support according to the present invention is particularly advantageous not only because it can be easily and quickly adjusted in a fast, simple, and substantially precise way, but also because it is adaptable to persons having a particular physical structure, for example persons who are particularly fat or particularly thin, or who have thigh malformations. In such cases, in fact, the rod according to the present invention makes it possible to regulate the abduction and adduction movements and, moreover, to maintain the pelvis harness and thigh harness mutually aligned.

[0043] An articulated rod for a hip support thus conceived may be subject to numerous modifications and variations, all of which do not depart from the scope of the invention. In addition, all the items can be replaced by elements that are technically equivalent.

[0044] In practice the materials used, as well as the dimensions, may be any whatsoever according to the particular technical requirements.

Claims

1. An articulated rod (14) for a hip support (11) comprising at least one first element (22) designed to be associated to a pelvis harness (12), and a second element (28) designed to be associated to a thigh harness (16), said first element (22) and second element (28) being joined together by means of a hinge (30), characterized in that said hinge (30) comprises at least one first plate (34) which is fixed to said first element (22) and has a face set at least against a corresponding face of an articulation plate (50), said first plate (34) and said articulation plate (50) being joined by means of a closing element (40) inserted at least in aligned through holes of said first plate (34) and of said articulation plate (50), said first plate (34) moreover having holes (42) which are set along at least one portion of its own periphery and in which adjustment elements (44) can be inserted, said adjustment elements (44) being designed to limit rotation of said articulation plate (50) with respect to said first plate (34).
2. An articulated rod (14) according to Claim 1, characterized in that at least one between said first plate (34) and said articulation plate (50) is disk-shaped.
3. An articulated rod (14) according to Claim 1, characterized in that said first plate (34) has a radial thickened portion (36) provided with a through hole in which a first screw (38) is inserted for blocking said first plate (34) on said first element (22) of said articulated rod (14).
4. An articulated rod (14) according to Claim 1, characterized in that said holes (42) which said first plate (34) presents set along at least one portion of its own periphery are threaded, and in that said adjustment elements (44) consist of screws.
5. An articulated rod (14) according to Claim 1, characterized in that between said first plate (34) and said articulation plate (50) at least one washer (46) made of self-lubricating material is set.
6. An articulated rod (14) according to Claim 5, characterized in that said washer (46) is provided with a central through hole aligned with said central holes of said first plate (34) and of said articulation plate (50), from said edges of said hole of said washer (46) there extending a sleeve-shaped portion (48) which inserts in said through hole of said articulation plate (50).
7. An articulated rod (14) according to Claim 5, characterized in that said washer (46) has, along its periphery, at least one graduated scale (52) which is set in an area corresponding to said holes (42) made along one portion of the periphery of said washer (46).
8. An articulated rod (14) according to Claim 7, characterized in that said articulation plate (50) has at least one window (54) through which the indications of said graduated scale (52) can be read.
9. An articulated rod (14) according to Claim 1, characterized in that it comprises at least one articulation (32) for adjustment of adduction and abduction of a patient's leg.
10. An articulated rod (14) according to Claim 9, characterized in that said articulation (32) comprises a radial extension (55) which is integral with said articulation plate (50) and ends with a plane portion (58), said plane portion (58) lying on a plane that is

orthogonal to the plane of said first plate (34) and said articulation plate (50), and being provided with teeth along its entire perimeter, said plane portion (58) being meshed with a portion (68), provided with teeth, of an extension (70) which is fixed to said second element (28) of said articulated rod (14). 5

11. An articulated rod (14) according to Claim 10, characterized in that at least one articulation element (60) is set between said plane portion (58) and said portion (68) provided with teeth of said extension (70). 10
12. An articulated rod (14) according to Claim 11, characterized in that said articulation element (60) consists of a pair of washers (62) which are joined together by means of an intermediate portion (64), front surfaces (66) which are set facing opposite sides of each of said washers (62) being substantially contained in the same plane and being provided with teeth for meshing with said plane portion (58) of said extension (55) on one side, and with said portion (68), provided with teeth, of said extension (70) which is fixed to said second element (28) of said articulated rod (14). 15
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13. An articulated rod (14) according to Claim 1, characterized in that said radial extension (55) has at least one through hole aligned with a through hole of one first of said washers (62) of said articulation element (60) for introduction therein of a screw (75) and for clamping of the coupling. 30
14. An articulated rod (14) according to Claim 1, characterized in that one second of said washers (62) of said articulation element (60) has a through hole aligned with a through hole of said extension (70) for introduction therein of another screw (75) and for clamping of the coupling. 35
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15. An articulated rod (14) according to Claim 12, characterized in that said plane portion (58), said portion (68) fixed to said second element of said articulated rod (14), and said surfaces (66) of said washers (62) meshed with them are provided with male-female elements (80). 45

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Fig.1

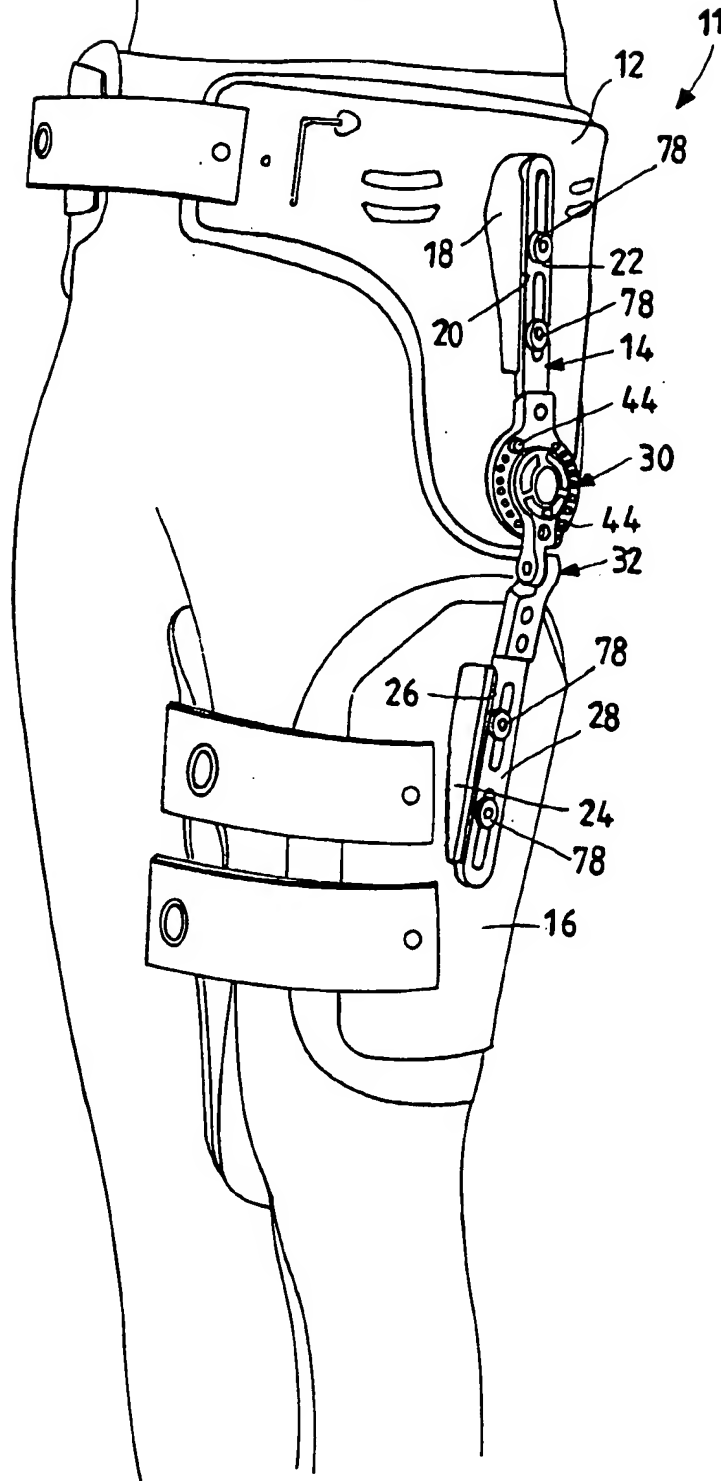


Fig.2

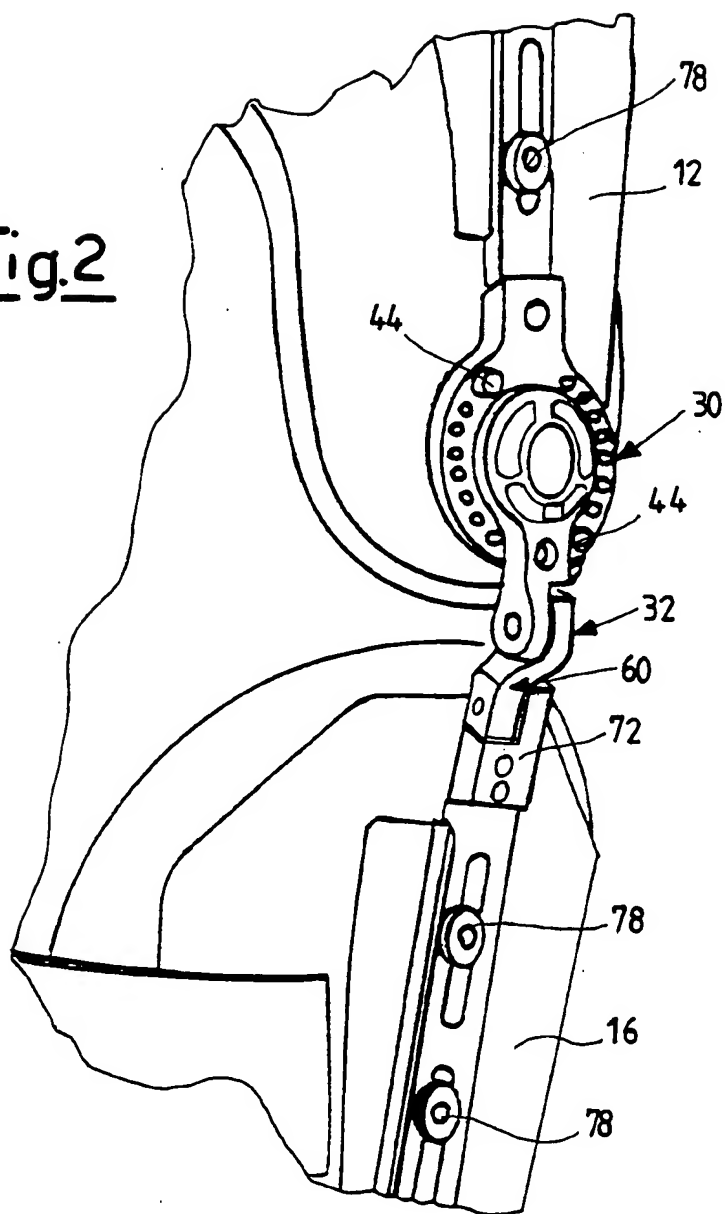


Fig.4

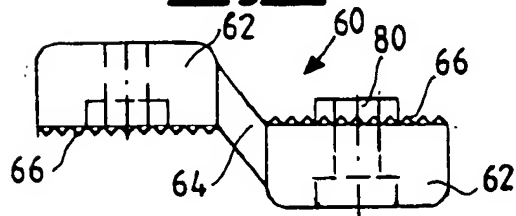
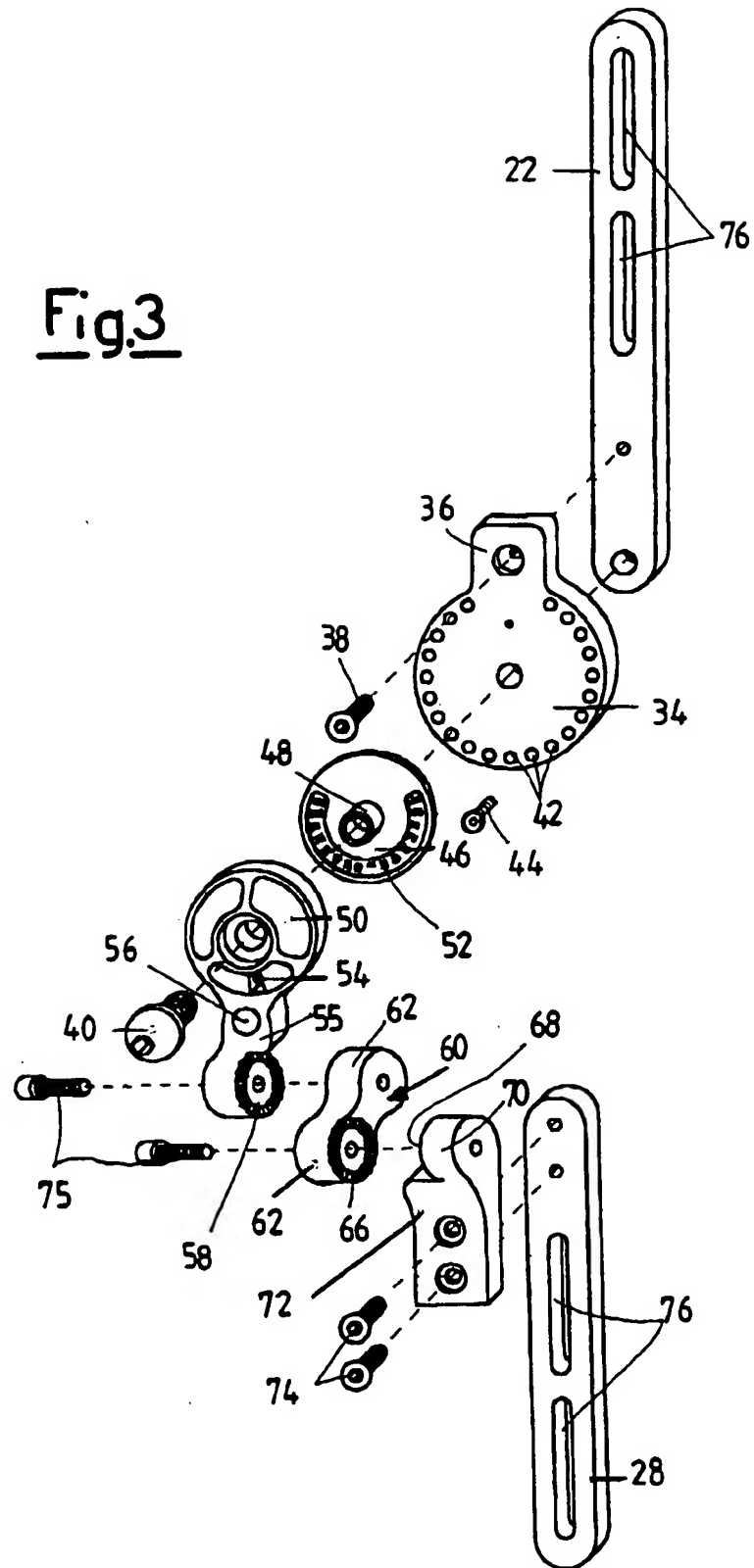


Fig.3





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Application Number
EP 00 20 2446

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Place of search THE HAGUE		Date of completion of the search 12 October 2000	Examiner Sánchez y Sánchez, J
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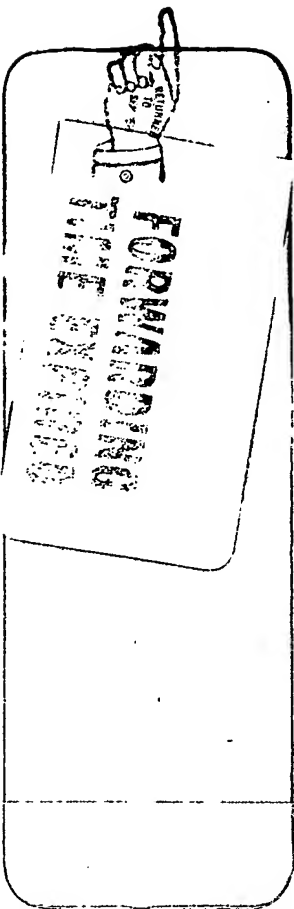
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